

Claims

1. A method of capturing operational history of an implantable medical device before, during and after detection of a fault condition for subsequent analysis to 5 assess the cause of the fault condition, comprising:

(a) providing an implantable, medical device having a microprocessor-based controller with a memory and a storage buffer, the storage buffer temporarily storing operational and physiologic data over a defined time interval;

10 (b) detecting the occurrence of a fault condition in the operation of the implantable medical device and producing a triggering signal a predetermined time following the detection of the fault condition; and

(c) storing the contents of the storage buffer in the memory upon the occurrence of the triggering signal.

15 2. The method of claim 1 wherein the trigger signal is produced at a time relative to the detection of the occurrence of the fault condition such that said data occurring prior to, during and after the fault condition are stored in the memory.

20 3. The method of either claim 1 or claim 2 and further including the step of:

(a) transmitting contents of the memory to an external monitor for analysis in determining a possible cause of the fault condition.

25 4. The method of claim 1 wherein the defined time interval is on the order of several seconds and said predetermined time is on the order of about one-half the said time interval.

10052887.041702

5. The method as in any one of claims 1, 2 or 4 wherein the implantable medical device is a cardiac rhythm management device, the operational data comprise event markers and the physiologic data comprise cardiac electrogram signals.

5 6. In an implantable medical device, apparatus for capturing fault history information for subsequent analysis, comprising:

- (a) a microprocessor-based controller;
- (b) a sense amplifier coupled to receive cardiac electrogram signals and to deliver same to the microprocessor-based controller,
- 10 (c) a random access memory operatively coupled to the microprocessor-based controller;
- (d) a FIFO buffer of a size capable of storing the sensed electrogram signals and event markers generated by the microprocessor-based controller over a defined time interval;
- 15 (e) means in the microprocessor-based controller for detecting fault conditions in the operation of the implantable medical device and producing a trigger signal a predetermined time following a detection of a fault condition;
- (f) means for transferring the contents of the FIFO buffer to the random access memory upon the occurrence of the trigger signal; and
- 20 (g) a telemetry link controlled by the microprocessor based controller for reading out information from the random access memory to an external monitor.

7. The apparatus as in claim 6 wherein the FIFO buffer is of a size to 25 contain said electrogram signals and event markers occurring during a time interval of several seconds.

8. The apparatus of claim 7 wherein the trigger signal is produced at a time following detection of a fault condition that is about one-half of said time interval.